



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/820,688

03/30/2001

Koji Naito

018987-032

8787

7590

03/17/2006

Platon N. Mandros
 BURNS, DOANE, SWECKER & MATHIS, L.L.P.
 P.O. Box 1404
 Alexandria, VA 22313-1404

EXAMINER

THOMPSON, JAMES A

ART UNIT

PAPER NUMBER

2624

DATE MAILED: 03/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,688

Applicant(s)

NAITO ET AL.

Examiner

James A. Thompson

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 20 December 2005 have been fully considered but they are not persuasive.

Applicant argues that it would not have been obvious to modify Ikenoue (US Patent 5,987,127) to have the active watermark taught by Zhao (US Patent 6,243,480 B1) since Zhao's active watermark is based in computer code and not a hard paper copy, as taught in Ikenoue.

Examiner replies that, while the source of the scanned input and the resultant output in Ikenoue is a hard paper copy, the digital image data processing itself is based in computer code. Thus, the mere fact that Zhao does not specifically teach a hard paper copy does not preclude the incorporation of the active watermarking taught by Zhao into the system taught by Ikenoue. The watermarking scheme taught by Ikenoue updates the watermarked information by simply adding more information each time the update is performed. However, since the watermarked information is first extracted, then the watermarked information can clearly be updated and the updated information placed back in the same location. Ikenoue simply does not teach this, but there is no reason why Ikenoue cannot be modified in a manner obvious to one of ordinary skill in the art at the time of the invention such that the updated watermark data is embedded at the same location as the original watermark data was extracted. The actual processing of the watermark data with respect to the image data, along with the determination of what the watermark data is to be and the decision of where exactly to print the watermark data, occurs in software. Thus, one of ordinary skill

Art Unit: 2625

in the art at the time of the invention could easily have modified the watermarking scheme taught by Ikenoue in accordance with the teachings found in Zhao. Furthermore, not only would one of ordinary skill in the art at the time of the invention have been able to modify Ikenoue according to the active watermarking taught in Zhao, but one of ordinary skill in the art at the time of the invention would also have had clear motivation to modify Ikenoue. As stated on page 5 of the previous office action, dated 20 September 2005 and mailed 27 September 2005, "[t]he motivation for doing so would have been to allow for the tracking of potentially unauthorized, copyright infringing documents (column 19, lines 32-40 of Zhao)." Thus, Ikenoue serves a more specific purpose than simple secrecy.

Finally, Applicant is respectfully reminded that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). With respect to the combination of Ikenoue and Zhao, one of ordinary skill in the art at the time of the invention would realize that the watermark data does not have to be updated by adding each time. A simple update of the watermark data, and printing the updated watermark data in the same spot as the originally extracted watermark data is more efficient.

Applicant argues that modifying Ikenoue to incorporate the active watermark taught by Zhao would prevent the intended use of Ikenoue, i.e. embedding information in hard copy of a

document, because the active watermark is not functional in a hard paper copy of a document; and that the proposed combination would be impossible.

Examiner replies that, as discussed above, the actual processing of the image data in Ikenoue takes place in software. Thus, combining Zhao with Ikenoue is simply a case of modifying the software taught by Ikenoue according to the teachings relating to the active watermark software taught by Zhao. This is clearly a possible and credible combination. Furthermore, as discussed above, one of ordinary skill in the art at the time of the invention would clearly have both the ability and the motivation to modify the teachings of Ikenoue according to the teachings of Zhao.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 5-9, 11-15, 17-22, and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikenoue (US Patent 5,987,127) in view of Zhao (US Patent 6,243,480 B1).

Regarding claims 1, 7, 13, 19, 20, 26, 27 and 28: Ikenoue discloses an image forming apparatus (figure 1 of Ikenoue) equipped with an image processing apparatus (figure 1(100); figure 13; and column 9, lines 26-28 of Ikenoue) that processed

Art Unit: 2625

inputted first image data (column 5, lines 46-48 of Ikenoue) so as to output second image data (column 5, lines 42-46 of Ikenoue), the image forming apparatus forming an image according to the second image data (column 5, lines 49-54 of Ikenoue). The image processing apparatus (figure 13 of Ikenoue) comprises a detecting unit (figure 24(131)(portion)) and column 4, lines 23-24 of Ikenoue) that detects all pieces of additional information that are embedded in the first image data (column 9, lines 51-53 of Ikenoue); and an analyzing unit (figure 24(131 (portion)) of Ikenoue) that analyzes the detected pieces of additional information (column 12, lines 56-61 of Ikenoue) and judges whether any of the detected pieces of additional information includes predetermined information (column 13, lines 45-50 of Ikenoue) that is updateable (column 14, lines 31-36 of Ikenoue). The detection and analysis of additional information is performed by a processor (figure 24(131) and column 13, lines 4-19 of Ikenoue). The detecting unit and the analyzing unit are the corresponding portions of said processor, along with the associated embodied software and memory, that perform the functions of the detecting unit and analyzing unit.

Ikenoue further discloses an embedding unit (figure 13(18) of Ikenoue) that (1) updates, when a judgment result of the analyzing unit is affirmative, the predetermined information included in the piece of additional information (column 16; lines 8-10, lines 21-22, and lines 25-28 of Ikenoue), and embeds the updated predetermined information into the first image data (figure 4 and column 16, lines 1-9 of Ikenoue), and (2) embeds, when the judgment result of the analyzing unit is negative, a new piece of additional information (column 16, lines 1-7 of Ikenoue) including updated information into the first image data

Art Unit: 2625

(column 16, lines 1-9 and lines 25-28 of Ikenoue), the updated information being equivalent to the predetermined information (column 16, lines 3-9 and lines 25-28 of Ikenoue), wherein the first image data embedded with the updated predetermined information and/or the new piece of additional information is outputted as the second image data (column 14, lines 31-37 of Ikenoue). A specific format (figure 4 of Ikenoue) is used for embedding each particular type of data, said format further being divided into specific blocks for processing (column 7, lines 35-43 of Ikenoue). Therefore, the new piece of additional information is embedded at a location that does not overlap locations where the detected pieces of additional information are embedded (figure 4 and column 7, lines 35-43 of Ikenoue). The generation number, copy number, and apparatus recognition code are always in the same format (figure 4 of Ikenoue) whether said generation number, copy number, and apparatus recognition code are newly placed in the document or are simply updated (column 16, lines 3-9 and lines 25-28 of Ikenoue).

Ikenoue does not disclose expressly that said embedding unit embeds the information at a location where said predetermined information is originally embedded.

Zhao discloses embedding initial predetermined information (figure 6(603) and column 11, lines 58-62 of Zhao); updating said predetermined information (column 19, lines 26-31 of Zhao); and then embedding said updated predetermined information (column 19, lines 26-30 of Zhao) at a location where the said initial predetermined information is originally embedded (figure 6(619); figure 8(619); and column 11, lines 49-53 and lines 58-62 of Zhao). As clearly shown in figures 6 and 8 of Zhao, when the watermark is embedded in the document (column 11, lines 49-

Art Unit: 2625

53 and lines 58-52 of Zhao), the watermark is written to a predetermined location, both when said watermark is initially written and when said watermark is updated and re-embedded (column 19, lines 26-31 of Zhao).

Ikenoue and Zhao are combinable because they are from the same field of endeavor, namely the embedding and updating of digital watermarks. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the watermark updating procedure taught by Zhao to update watermarks in the system taught by Ikenoue. The motivation for doing so would have been to allow for the tracking of potentially unauthorized, copyright infringing documents (column 19, lines 32-40 of Zhao). If the teachings of Zhao regarding the updating of watermarks are used, the level of secrecy and randomness of watermark location taught by Ikenoue is no longer required, since the tracking of unauthorized copies is a simpler matter. If the watermark is defective, the copy is unauthorized. If the watermark is missing, then the copy is also unauthorized. Thus, the concern in Ikenoue about malicious users marking out portions of a document to defeat the watermarking scheme is no longer a concern if the teachings and motivations of Zhao are applied to the teachings of Ikenoue. Therefore, it would have been obvious to combine Zhao with Ikenoue to obtain the invention as specified in claims 1, 7, 13, 19, 20, 26, 27 and 28.

Further regarding claim 1: The apparatus of claim 1 is fully embodied in the apparatus of claim 7.

Further regarding claim 13: The apparatus of claim 7 performs the method recited in claim 13.

Further regarding claim 19: The apparatus of claim 7 performs the method recited in claim 19.

Further regarding claim 20: The apparatus of claim 7 executes the steps of the computer program recited in claim 20.

Further regarding claim 26: The apparatus of claim 26 is fully embodied in the apparatus of claim 1.

Further regarding claim 27: The method of claim 27 is fully embodied in the method of claim 13.

Further regarding claim 28: The computer-readable medium containing a program of claim 28 is embodied in the computer-readable medium containing a program of claim 20.

Regarding claims 2, 8, 14 and 21: Ikenoue discloses that said image processing apparatus further comprises an extracting unit (figure 24(131)(portion) of Ikenoue) that extracts the detected pieces of additional information from the first image data (column 13, lines 11-13 of Ikenoue). The extracting unit is the portion of the image analysis processor (figure 24(131) of Ikenoue), along with the associated embodied software and memory that performs the functions of said extracting unit. Since said analyzing unit is a portion of the image analysis processor, and the next step is the analysis of the extracted additional information (figure 25(s1306) and column 13, lines 14-16 of Ikenoue), then said extracting unit sends the extracted pieces of additional information to the analyzing unit. Further, the embedding unit embeds each of the detected pieces of additional information and the new piece of additional information by referring to location information (column 16, lines 39-44 of Ikenoue) showing a location of each of the extracted pieces of additional information (figure 4 and column 16, line 67 to column 17, line 7 of Ikenoue). Since the block

Art Unit: 2625

number, and therefore the relative location, is rearranged and determined by the extracting unit (column 14, lines 4-8 of Ikenoue), the location (predetermined dot number *added with a block number*) (column 16, lines 41-44 of Ikenoue) is sent by the extracting unit.

Regarding claims 3, 9, 15 and 22: Ikenoue discloses that when the analyzing unit analyzes the detected pieces of additional information, the analyzing unit employs a predetermined embedding format used by the embedding unit (figure 4; and column 7, lines 36-49 of Ikenoue). The additional data is embedded using a predetermined format (figure 4 and column 7, lines 36-38 of Ikenoue) which can also be split into blocks of data of a predetermined size and arranged in a predetermined fashion (column 7, lines 39-45 of Ikenoue). The additional data is recovered using the same predetermined format (column 7, lines 45-49 of Ikenoue).

Regarding claims 5, 11, 17 and 24: Ikenoue discloses that, when the analyzing unit finds that any of the detected pieces of additional information is unanalyzable (column 13, lines 60-66 of Ikenoue), the analyzing unit judges that the piece of additional information does not include the predetermined information (column 14, lines 4-8 of Ikenoue). Blocks of additional data are analyzed to determine whether or not said blocks of additional data are invalid (column 13, lines 60-66 of Ikenoue). If said block of additional data are invalid, but said invalidity is not due to forgery, said invalid blocks are deleted (column 14, lines 4-8 of Ikenoue). Thus, said invalid blocks clearly do not have said predetermined information.

Regarding claims 6, 12, 18 and 25: Ikenoue discloses that the predetermined information includes information about a date

Art Unit: 2625

when the image data is processed (column 16, lines 21-22 and lines 33-34 of Ikenoue).

4. Claims 4, 10, 16 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikenoue (US Patent 5,987,127) in view of Zhao (US Patent 6,243,480 B1) and Davis (US Patent 3,760,159).

Regarding claims 4, 10, 16 and 23: Ikenoue discloses a warning unit (figure 13(20) of Ikenoue) that issues, when the additional data is determined to be secret (column 19, lines 60-65 of Ikenoue) and the proper confirmation data is not entered (column 20, lines 3-4 of Ikenoue), a warning to the effect that the copying of the document would be illegal (column 20, lines 5-9 of Ikenoue).

Ikenoue further discloses using the analyzing unit to find if any of the detected pieces of additional information are unanalyzable (column 13, lines 60-66 of Ikenoue).

Ikenoue in view of Zhao does not disclose expressly that said warning unit issues, when the analyzing unit finds that any of the detected pieces of additional data is unanalyzable, a warning to the effect that the piece of additional information is unanalyzable.

Davis discloses issuing a warning to the effect that a valid parity does not exist (column 6, lines 16-20 of Davis) in the digital input data (column 5, lines 64-68 of Davis).

Ikenoue in view of Zhao is combinable with Davis because they are from similar problem solving areas, namely the verification of digital information. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to display a warning if the digital data cannot

be read properly, as taught by Davis, and is therefore unanalyzable, as taught by Ikenoue. The motivation for doing so would have been to give the operator a visual notification that an error has occurred (column 6, lines 19-20 of Davis). Therefore, it would have been obvious to combine Davis with Ikenoue in view of Zhao to obtain the invention as specified in claims 4, 10, 16 and 23.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the

Art Unit: 2625

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



03 March 2006

James A. Thompson
Examiner
Division 2625



DAVID MOORE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2625